

CLAIMS

- 1 1. A method for managing a service across an optical network over a dedicated circuit
2 between a first and second service termination points, the method comprising:
3 generating a service performance report message at each of the service
4 termination points, each service performance report message having information related
5 to a performance of the service as determined by the service termination point generating
6 that service performance report message; and
7 transmitting the service performance report message generated by one of the
8 service termination points to the other service termination point over a service
9 management channel to enable an assessment of the performance of the service based on
10 the service performance report messages from both service termination points.
- 1 2. The method of claim 1, further comprising monitoring the service management channel
2 from an intermediate network element that is in the dedicated circuit between the service
3 termination points to determine a status of the service.
- 1 3. The method of claim 1, further comprising determining from the performance assessment
2 whether the service is performing in accordance with terms of a service level agreement
3 governing the service.
- 1 4. The method of claim 1, wherein the step of generating a PRM is a scheduled event.
- 1 5. The method of claim 1, further comprising monitoring the PRMs generated by the
2 termination points at an intermediate network element connected to the dedicated circuit
3 between the termination points.

- 1 6. The method of claim 1, further comprising transmitting a service query command to each
2 of the service termination points over the service management channel.
- 1 7. The method of claim 1, further comprising receiving a service report having service
2 configuration information over the service management channel from each of the service
3 termination points in response to the service query commands.
- 1 8. The method of claim 1, further comprising transmitting a command message over the
2 service management channel to one of the service termination points to change a state of
3 that service termination point.
- 1 9. The method of claim 8, wherein the state of the service termination point is a loopback
2 condition, and further comprising transmitting a test signal to that one service termination
3 point to verify connectivity.
- 1 10. An optical network for supporting a service provided by a service provider over a
2 dedicated circuit between service termination points, the optical network comprising first
3 and second network elements each disposed in the dedicated circuit of the service, the
4 first network element sending a message to the second network element over an optical
5 transport facility using a service management channel capable of carrying the message
6 across a network-to-network interface, the messages conveying information related to a
7 performance of the service over the dedicated circuit.
- 1 11. The optical network of claim 10, wherein the service management channel includes a
2 byte of a path overhead of an optical transmission frame.

- 1 12. The optical network of claim 10, wherein the service management channel includes a
2 field in a *Generic Framing Procedure* client management frame.
- 1 13. The optical network of claim 10, wherein the message is one of a command message, a
2 response to a command message, a service performance report message, and a priority
3 code message.
- 1 14. The optical network of claim 10, wherein the first and second network elements are edge
2 service switches.
- 1 15. The optical network of claim 10, wherein one of the first and second network elements is
2 a core service switch.
- 1 16. The optical network of claim 10, wherein the service is one of an asynchronous service, a
2 synchronous service, a local area network service, a storage area network service, and a
3 managed wavelength service.
- 1 17. The optical network of claim 10, wherein the first network element is in a first network
2 managed by a first service provider and the second network element is in a second
3 network managed a second service provider.
- 1 18. The optical network of claim 10, wherein the first and second network elements are in a
2 network managed by the service provider.
- 1 19. A network element connected at one end of a dedicated circuit used to carry customer
2 traffic associated with a service, the network element comprising:
3 a client interface receiving client signals from a client network;

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4 a service management channel entity deriving from the client signals information
5 related to a performance of the service and generating a message in response to the
6 service performance information; and

7 a transport interface for mapping and adapting the client signals to an optical
8 transport facility, the transport interface transmitting the message to a network element at
9 the other end of the dedicated service over a service management channel capable of
10 carrying the message across a network-to-network interface.

1 20. A network element connected between service termination points located at opposite
2 ends of a dedicated circuit used to carry customer traffic associated with a service over a
3 transport facility, the network element comprising:

4 a transport interface receiving customer traffic associated with the service; and
5 a service management channel entity processing the customer traffic received by
6 the transport interface to access service performance information stored in a service
7 management channel of the transport facility by one of the service termination points.